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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,943	04/11/2005	Yoshinobu Suehiro	PTGF-04078US	2058
21254 7590 01/07/2008 MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			EXAMINER MAKIYA, DAVID J	
			ART UNIT 2885	PAPER NUMBER
			MAIL DATE 01/07/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/521,943	<b>Applicant(s)</b> SUEHIRO ET AL.	
	<b>Examiner</b> David J. Makiya	<b>Art Unit</b> 2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

Applicant's amendment filed 10/15/2007 has been entered.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 10, 13-17, 21, 22, and 25-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al. (US Patent 6,851,835).

With respect to claim 1, Smith et al. teaches a light emitting apparatus, comprising a light source section 20 comprising a solid-state light emitting element 50; a power supply member 30 that supplies power to the light source section (Column 5, Lines 24-35); a reflection section 12 that is disposed opposite to a light extraction surface of the light source section to reflect light emitted from the light source section (Column 5, Lines 24-35); and a heat radiation member 40 that is disposed with a heat radiation width in a back direction of the light source section; and an insulating layer 30 disposed between the power supply member and the heat radiation member (Figure 4), wherein the heat radiation member comprises a planar member disposed parallel to a light extraction direction of the light emitting apparatus (Figure 4), and the power supply member, which is separate from the heat radiation member, is formed along a bottom of the planar member (Column 5, Lines 24-35).

With respect to claim 2, Smith et al. teaches a light emitting apparatus, comprising a light source section 20 comprising a solid-state light emitting element 50; a power supply member 30 that supplies power to the light source section (Column 5, Lines 24-35); a reflection section 12 that is disposed opposite to a light extraction surface of the light source section to reflect light emitted from the light source section (Column 5, Lines 24-35); a heat radiation member 40 that is disposed with a heat radiation width in a back direction of the light source section; an insulating layer 30 disposed between the power supply member and the heat radiation member; and a case 10 in which the reflection section and the radiation member are placed and which externally radiates heat to be transferred from the heat radiation member (Figure 7), wherein the heat radiation member comprises a planar member disposed parallel to a light extraction direction of the light emitting apparatus (Figure 4), and the power supply member, which is separate from the heat radiation member, is secured to an end face of the planar member (Column 5, Lines 24-35).

With respect to claim 10, Smith et al. teaches the light emitting apparatus wherein the case comprises a high reflectivity surface to reflect the light (Column 5, Lines 36-46).

With respect to claim 13, Smith et al. teaches the light emitting apparatus wherein the heat radiation section comprises a heat radiation support that comprises a high thermal conductivity material and transfers to the heat radiation member heat generated from the light source section (Column 8, Lines 58-67), and a heat radiation plate that transfers the heat through the heat radiation support (Figure 7).

With respect to claim 14, Smith et al. teaches a light emitting apparatus, comprising a light source section 20 comprising a solid-state light emitting element 50; a power supply

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member 30 that supplies power to the light source section (Column 5, Lines 24-35); a reflection section 12 that is disposed opposite to a light extraction surface of the light source section to reflect light emitted from the light source section (Column 5, Lines 24-35); and a heat radiation member 40 that is disposed with a heat radiation width in a back direction of the light source section; and an insulating layer 30 disposed between the power supply member and the heat radiation member, wherein the power supply member is formed with a width in the back direction of the light source section (Figure 4), wherein the heat radiation member comprises a planar member disposed parallel to a light extraction direction of the light emitting apparatus (Figure 7), and the power supply member, which is separate from the heat radiation member, is secured to an end face of the planar member (Column 5, Lines 24-35).

With respect to claim 15, Smith et al. teaches the light emitting apparatus wherein the power supply member comprises a metallic thin film and is disposed with a width in the back direction of the light source section and is integrated with the heat radiation member while being insulated from the heat radiation member (Figure 4).

With respect to claim 16, Smith et al. teaches the light emitting apparatus wherein the power supply member comprises a metallic thin film and is sandwiched through an insulator between a plurality of heat radiation plates to compose the heat radiation member (Figure 4).

With respect to claim 17, Smith et al. teaches the light emitting apparatus wherein a spectrum light with a plurality of region wavelengths is radiated from the solid-state light emitting element or from the periphery of the solid-state light emitting element (Column 10, Lines 2-10).

With respect to claim 21, Smith et al. teaches the light emitting apparatus wherein the heat radiation section comprises a shape that protrudes toward a bottom of the reflection surface (Figure 4).

With respect to claim 22, Smith et al. teaches the light emitting apparatus wherein the reflection surface opposite to the light source section comprises a solid angle of  $2\pi$  to  $3.4\pi$  strad (Figure 4).

With respect to claim 25, Smith et al. teaches the light emitting apparatus wherein the light source section comprises a plurality of solid-state light emitting elements (Figure 1A).

With respect to claim 26, Smith et al. teaches the light emitting apparatus wherein the light emitting apparatus comprises a plurality of light source sections (Figure 1), and a plurality of reflection sections and the heat radiation members corresponding to the plurality of the light source sections (Figure 7).

With respect to claim 27, Smith et al. teaches the light emitting apparatus wherein the plurality of the light source sections generate a plurality of emission colors (Column 10, Lines 2-10).

With respect to claim 28, Smith et al. teaches the light emitting apparatus wherein the plurality of the light source sections generate emission colors of R, G, and B (Column 10, Lines 2-10 and Column 1, Lines 54-61).

With respect to claims 30-32, Smith et al. teaches the light emitting apparatus wherein the light source section is mounted on a part of the bottom of the planar member (Figure 4).

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With respect to claim 34, Smith et al. teaches the light emitting apparatus wherein the power supply member is insulated from the heat radiation member by the insulation layer (Figure 4).

With respect to claim 35, Smith et al. teaches the light emitting apparatus wherein the heat radiation member comprises a second planar member disposed parallel to the planar member (Figure 7).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. in view of Hecht (US Patent 6,871,993) and Zhang et al. (US Patent 5,924,785).

With respect to claims 3, 11, and 12, Smith et al. teaches the light emitting apparatus as described above, but fails to teach the material of the heat radiation section or the case.

Hecht teaches a light emitting apparatus comprising a light source section 14, a power supply section 26, a reflection section 12, a heat radiation member 28, and an insulating layer 26, wherein the heat radiation member is made of an aluminum material (Column 2, Lines 45-51).

Zhang et al. teaches the light emitting apparatus comprising a light source section 20, a power supply section 30, a reflection section 12, a heat radiation member 30, and a case 11,

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wherein the case is made of an aluminum material (Column 3, Lines 9-11) and is subjected to a finishing to increase its heat radiation area (Column 3, Lines 1-11).

It would have been obvious and advantageous to one of ordinary skill in the art at the time of the invention to reconstruct the heat radiation section and case from Smith et al. with the aluminum material from the teachings of Hecht and Zhang et al. because aluminum is a “thermally conductive and rigid material...to dissipate heat” (Hecht; Column 2, Lines 45-51) and is also a “light reflecting material” (Zhang et al.; Column 3, Lines 9-11).

Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. in view of Young (US Patent 6,672,741).

With respect to claims 4-9, Smith et al. teaches the light emitting apparatus as described above with an inorganic material board 13 on which a conductive pattern is formed to supply power to the solid state light emitting element, but fails to teach the light source section is packaged such that the solid-state light emitting element is sealed with a light transmitting material.

Young teaches a light emitting apparatus comprising a light source section 12, a power supply section 14, and a reflection section 11, wherein the light source section is packaged such that the solid-state light emitting element is sealed with a light transmitting, inorganic seal material 13 comprising glass (Column 3, Lines 1-2) and a refractive index of 1.55 or more (Column 2, Line 49-Column 3, Line 2).

It would have been obvious and advantageous to one of ordinary skill in the art at the time of the invention to reconstruct the light emitting apparatus of Smith et al. by adding the seal



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material from the teaching of Young because the “light emitting diode 12 is fixed securely to the front cover” (Young; Column 2, Lines 49-59) to protect the light source (Young; Figure 2), but without limiting the light because the “cover is made up of a transparent material” (Young; Column 1, Lines 63-65).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Young in view of Lowery (US Patent 5,959,316).

With respect to claim 18, Young teaches the light emitting apparatus as described above, but fails to teach a phosphor disposed on the periphery of the solid-state light emitting element.

Lowery teaches a light emitting apparatus comprising a light emitting diode 18 and a phosphor 52 disposed on the periphery of the solid-state light emitting element.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitting apparatus of Young by adding a phosphor from the teachings of Lowery because a phosphor “provides a final combination of light which appears as white to the human eye” (Lowery; Column 1, Lines 21-27). Furthermore, it would be advantageous to reconstruct the device with the phosphor because it would “provide a constant, uniform white light LED” (Lowery; Column 1, Lines 46-52).

Claims 19, 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al.

With respect to claims 19, 20, and 23, Smith et al. teaches the light emitting apparatus, but fails to teach the heat radiation section has the heat radiation width that is three times or more

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its thickness, the solid-state light emitting element has a width that is within five times that of the solid-state light emitting element, or the light source with a turn-on power of 1 W or more.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the width of the heat radiation section, the width of the light emitting element, or the power level, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only ordinary skill in the art. *In re Aller*, 105 USPQ 233.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. in view of McCullough et al. (US 2004/0252502).

With respect to claim 24, Smith et al. teaches the light emitting apparatus as described above, but fails to teach the material of the reflection section.

McCullough et al. teaches a light emitting apparatus comprising a light source section 46, a power supply section 45, a reflection section 12, and a heat radiation member 40, wherein the reflection section is made of a resin material (Paragraph 25).

It would have been obvious and advantageous to one of ordinary skill in the art at the time of the invention to reconstruct the reflection section of Smith et al. with the resin material from the teachings of McCullough et al. because resin is a “thermally conductive” (McCullough et al.; Paragraph 26) and is also a “dimensionally stable and have high impact strength” (McCullough et al.; Paragraph 25).

Claims 29 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Newby (US Patent 6,999,318) in view of Zhang (US Patent 6,578,998).

With respect to claims 29 and 33, Newby teaches a light emitting apparatus, comprising a light source section 24 comprising a solid-state light emitting element; a power supply section 42 that supplies power to the light source section; a heat radiation section 46 that is disposed with a heat radiation width in a back direction of the light source section, wherein the heat radiation section is separated from the power supply section (Figure 3), wherein the heat radiation section comprises a planar member (Figure 3) disposed parallel to a light extraction direction of the light emitting apparatus (Figure 3), and the power supply section is formed along a bottom of the planar member (Figure 3).

However, Newby fails to teach a reflection section that is disposed opposite to a light extraction surface.

Zhang teaches a light source section 21 comprising a solid-state light emitting element (Column 1, Lines 47-49); a power supply section (15, 31); a heat radiation section 31 that is disposed with a heat radiation width in a back direction of the light source section (Column 2, Lines 57-67) and a reflection section 11 that is disposed opposite to a light extraction surface of the light source section to reflect light emitted from the light source section (Figure 2), and wherein the light source section is formed along the bottom of the planar member (Figure 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitting apparatus of Newby to add a reflector as taught with the teachings of Zhang because adding a reflector makes "a light source arrangement which is capable of

providing light intensity up to five times of a conventional LED” (Zhang; Column 1, Lines 46-49).

### *Response to Arguments*

Applicant's arguments with respect to claims 1-28, 30-32, and 34-35 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to claims 29 and 33 have been fully considered but they are not persuasive.

In response to applicant's arguments regarding the power supply section along a bottom of the heat radiation section in the Newby reference, the heat radiation section has a planar member that is parallel to the light extraction direction, or vertically in Figure 3. Since the fins of the heat radiation section extend downward that would be the top of the heat radiation section and the bottom of the planar member would therefore be contacting the power supply member 42 as shown. Furthermore, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Makiya whose telephone number is (571) 272-2273. The examiner can normally be reached on Monday-Friday 7:30am - 4:00pm (ET).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJM 01/02/2008



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